Article

Intrapartum antibiotics for maternal Group B Streptococcus: do they improve neonatal outcomes? Review of Ohlsson A and Shah VS (2014). 'Intrapartum antibiotics for known maternal Group B streptococcal colonisation' Cochrane Database of Systematic Reviews, 6: CD007467

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Evidence series

Intrapartum antibiotics for maternal Group B Streptococcus: do they improve neonatal outcomes?

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Introduction

Group B *Streptococcus* (GBS) infection in pregnancy can increase the risk of neonatal infection from mother to baby during labour. This can cause early and late onset sepsis in newborns, maternal infection, stillbirth, and may contribute to preterm birth (Lawn et al 2017). In 2014-2015, the incidence of early-onset GBS in the UK and Ireland within the first six days of life was 0.57/1000 births (517 cases) (O'Sullivan et al 2019). Of these births, 5.2 per cent died (27 cases). Current guidelines recommend that intrapartum antibiotic prophylaxis (IAP) should be offered to women who have been identified as having GBS infection during their current pregnancy (Hughes et al 2017). However, treating all women with the infection increases exposure to adverse effects from the antibiotics (adverse reactions, antibiotic resistance). A Cochrane Review assessed the impact of administering IAP during labour for maternal GBS on mortality from any cause, GBS infection and infections other than GBS (Ohlsson and Shah 2009). The review was updated in 2014 (Ohlsson and Shah 2014).

The review

The review authors searched the Cochrane Pregnancy and Childbirth Group's Trials Register for randomised controlled trials (RCTs) that assessed the impact of IAP on neonatal GBS infections. The updated review (Ohlsson and Shah 2014) did not identify any new trials, so the results remain unchanged from the original review. Trials that were included in the review administered IAP to mothers known to be GBS-positive at any time during the pregnancy. The comparison groups were mothers who received no treatment, a placebo treatment or a different type of antibiotic. The primary outcomes of interest were neonatal mortality by any cause, neonatal mortality from early onset GBS infection (within seven days of birth) or from infections caused by bacteria other than GBS. Secondary outcomes included early GBS infection, late onset GBS sepsis (>7 days) and maternal outcomes, including postpartum infection and sepsis.

What they found

The review included data from 852 women in four trials. Three of these trials (including 500 women) evaluated the effectiveness of IAP against receiving no treatment. One trial compared the effects of ampicillin versus penicillin.
The authors found that there was no significant effect of IAP on neonatal mortality from any cause (including GBS or from other bacterial infections). There was, however, a significant reduction in the incidence of early GBS infection in neonates. The authors estimated that, in order to see any benefit in one case, 25 women would need to be treated with IAP. There was also a significant reduction in the incidence of probable early GBS infection in neonates following IAP. There were no significant differences in the incidence of late onset GBS infection or infection due to other causes in neonates. Maternal outcomes including sepsis or postpartum infection indicated no significant differences. One trial (including 352 women) assessed the use of ampicillin versus penicillin and found no significant difference in outcome for mother or baby.

Quality of the evidence
All identified studies were assessed by two authors for inclusion in the review and were subsequently assessed using the Cochrane risk-of-bias tool. Authors assessed the likelihood and level of bias and whether it was likely to impact on the findings. Overall, the quality of the included studies was found to be poor and the risk of bias was ‘high’ for one or more key domains in how the studies were conducted. This seriously weakens confidence in the interpretation of the results. The authors also raised concerns regarding the completeness and applicability of the evidence. These include a lack of pre-set sample sizes and a lack of placebo treatments within the control groups. They also note that the women and care-providers within the studies were aware of the group assignment.

Implications for midwifery practice
The administration of intrapartum antibiotics for known maternal Group B Streptococcus appears to reduce the occurrence of early GBS infection in the neonate, when compared to no treatment. There are no clear differences demonstrated for neonate deaths, late onset GBS infection or maternal outcomes, including sepsis. Due to the high risk of bias identified in the three studies investigating IAP, the authors are unable to make any recommendations to inform practice. They also state that information is lacking on whether intrapartum ampicillin is preferable to penicillin for women with GBS infection.

Conclusions
Administering antibiotics during the intrapartum period appears to reduce the early onset of GBS infection. However, the authors exercise caution with these results, as they found a high risk of bias in the study methodology and execution. They conclude that there is insufficient evidence from well-conducted trials, to recommend IAP for reducing early onset GBS disease in neonates.

The authors also comment that, given the common practice of administering IAP to women with GBS, it has been poorly studied. The implication for research is that future studies should be both well-designed and conducted. **TPM**

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